

Appl. No. 10/601,596
Amendment dated: December 8, 2006
Reply to OA of: September 11, 2006

REMARKS

This is in response to the Official Action of September 11, 2006, in connection with the above-identified application. Applicants have amended the claims of the instant application in order to more precisely define the scope of the present invention, taking into consideration the outstanding Official Action.

Specifically, Applicants have amended claim 1 to incorporate the subject matter recited in claim 2. Claim 1 now recites that the elastic layer(s) is made of elastic silica gel materials. In light of this amendment, Applicants have canceled claim 13.

Additionally, Applicants have amended claim 1 to address the §112, second paragraph rejection set forth in the outstanding Official Action. The Official Action urges that the term "micro/nano" renders the claim indefinite. Accordingly, Applicants have replaced the term "micro/nano" from the claim with the phrase "capable of clutching micro and nano sized objects". In light of this amendment to claim 1, Applicants respectfully request that the rejection of claims 1-3, 5, 6 and 14 be withdrawn.

The rejection of claims 1, 3, 5, 6 and 14 under 35 U.S.C. §103(a) as being unpatentable over Breu et al. (US Pat. No. 5,263,753) in view of Conway et al. (US Pub. Pat. App. No. 5,538,305) has been carefully considered but is most respectfully traversed in light of the amendments to the claims and the following comments.

Applicants wish to direct the Examiner's attention to the basic requirements of a prima facie case of obviousness as set forth in the MPEP § 2143. This section states that to establish a prima facie case of obviousness, three basic criteria first must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

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The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Section 2143.03 states that all claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988).

Applicants also most respectfully direct the Examiner's attention to MPEP § 2144.08 (page 2100-114) wherein it is stated that Office personnel should consider all rebuttal argument and evidence presented by applicant and the citation of In re Soni for error in not considering evidence presented in the specification.

The Official Action urges that Breu discloses all of the elements recited in claims 1, 3, 5, 6 and 14, but acknowledges that Breu does not expressly state that the gripper is a micro-gripper. To address this deficiency, the Official Action cites Conway as disclosing a micro-gripper powered by a drive mechanism for gripping and releasing very small objects and urges that based on the existence of a micro-gripper as taught in Conway, it would have been obvious to one of ordinary skill in the art to optimize the gripper disclosed in Breu to be a micro-gripper. Applicants respectfully traverse this rejection.

As set forth in the previous response, Applicants respectfully submit that reducing the size of a gripper that is designed for use with regular sized objects to a micro- or nano-gripper is not a matter of mere optimization as alleged in the Official Action. This is due primarily to the fact that micro- and nano-technology are emerging fields that are not fully developed and which require recognition of the complexities associated working at such small scales. In many other applications of micro- and nano-technology, it has been established that merely reducing the size of an existing apparatus will not yield a functional device at the micrometer or nanometer level

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because the existing apparatus do not account for the complexities associated with microtechnology and nanotechnology. For example, objects at the nanometer level may be especially delicate and therefore need to be handled with an extra amount of care. However, simply scaling down an existing apparatus used with regular sized object may not account for this delicacy and will therefore destroy nanometer level objects. Because those of ordinary skill in the art of nanotechnology recognize this, Applicants respectfully submit that it would be counter-intuitive to one of ordinary skill in the art to simply reduce the scale of the gripping device to the nanometer level to create a nano-gripper. Applicants respectfully assert that developing a micro or nano gripper requires far more ingenuity and design than merely miniaturizing a gripper adapted for gripping medium and full size objects, as is the case with the gripper disclosed in Conway. Accordingly, Applicants respectfully submit that it would not be obvious to combine Breu and Conway to reach the claimed invention as urged in the Official Action, and therefore a proper §103 rejection according to the guidelines set forth in MPEP §2143 has not been established. Applicants therefore respectfully request that this rejection be withdrawn.

Additionally, Applicants respectfully submit that the Breu reference is not analogous art to the claimed invention and therefore cannot be used in support of a §103(a) rejection of the claimed invention. "In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). Applicants respectfully submit that Breu is not in the field of applicants endeavor, since the present invention is directed to gripping nano and micro devices, while the Breu reference only addresses objects that are medium and large size (i.e., items in food industry as discussed at col. 1, lines 34-36). Similarly, the Breu reference is not pertinent to the problem that Applicants are concerned with because Applicant's invention is directed solely solving the problem of gripping nano and micro devices. Breu, on the other hand, is directed at providing a

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gripper for use with medium and large sized objects that is simple in construction and free from maintenance (see, e.g., col. 1, lines 23-25). Accordingly, since Breu is not analogous art to the instant application, Applicants respectfully submit that it cannot be properly used in a §103 rejection as set forth in MPEP §2141.01(a). Applicants therefore respectfully request that this rejection be withdrawn.

With respect to claim 14, the Official Action urges that the middle portion 4 of the supporting mechanism 2 in Breu does not obstruct the deformable area when the deformable area is sunken inwardly. Similar arguments are made in responding to Applicant's previously presented arguments. Essentially, the Official Action argues that because some of the supporting mechanism does not obstruct the deformable area, Breu meets the limitation of claim 14. Applicants respectfully traverse this position.

Applicants note that claim 14 recites a clutching mechanism "wherein said supporting means does not obstruct said deformable area when said deformable are is sunken inwardly". The limitation of claim 14 does not recite a clutching mechanism wherein the supporting means does not obstruct some of the deformable area. Rather, the claim is clearly written to recite that no portion of the deformable area is obstructed by the supporting mechanism. It is irrelevant that the middle portion 4 of the supporting mechanism does not obstruct the deformable area because the outside portions of the supporting mechanism do obstruct the deformable mechanism. The Official Action acknowledges as such in the Official Action, wherein it is stated "[i]t is agreed that some of the portion of the supporting mechanism (2) substantially obstructs the deformable area located at the outer portion of the area 14" (Official Action, page 7). To interpret the claim language to mean that a portion of the supporting mechanism may obstruct the deformable area so long as a portion of it does not amounts to ignoring the claim limitation altogether. Claim 14 cannot be reasonably interpreted in any other manner than to require that no portion of the supporting mechanism obstruct the deformable area.

Further, even though the middle portion of the supporting mechanism 2 does not obstruct the deformable area at first, the middle portion of the supporting mechanism

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does eventually obstruct the deformable area, as clearly shown in, e.g., Figure 2. The middle portion of the deformable area would continue to be sunken inwardly if not for the supporting mechanism, but the supporting mechanism serves essentially as a roof by which the deformable area cannot extend. Thus, Applicants respectfully submit that even though the middle portion of the deformable area is capable of moving, it is not capable of moving unobstructed due to the presence of the supporting mechanism.

For all of the forgoing reasons, Applicants respectfully submit that neither Breu nor Conway disclose or suggest every element of claim 14 and therefore cannot be used to properly support a §103(a) rejection according to the guidelines set forth in MPEP §2143. Applicants therefore respectfully request that this rejection be withdrawn.

The rejection of claim 2 under 35 U.S.C. §103(a) as being unpatentable over Breu in view of Conway and further in view of Regan (US Pub. Pat. App. No. 2004/0002121) has been carefully considered but is most respectfully traversed in light of the amendments to the claims and the following comments.

As discussed above, Applicants have amended claim 1 to incorporate the limitation of claim 2. Accordingly, Applicants respectfully submit that the rejection of claim 2 under 35 U.S.C. §103(a) has been rendered moot and should therefore be withdrawn.


Furthermore, as discussed in detail above, neither Breu nor Conway, either standing alone or when taken in combination, disclose or suggest each and every element of claim 1. Applicants respectfully submit that Regan also fails to remedy the deficiencies identified above with respect to the rejection of claim 1 over Breu and Conway. Thus, because claim 2 depends from claim (and is now incorporated into claim 1), Applicants respectfully submit that claim 2 is patentable over the references of record for all the same reasons as given for the patentability of claim 1. Applicants therefore respectfully request that this rejection be withdrawn.

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In view of the above comments, favorable reconsideration and allowance of all of the claims now present in the application are most respectfully requested.

Respectfully submitted,

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